



Pacific Advocates

April 13, 2011

Alexis Strauss
Water Division Director, Region IX
U.S. Environmental Protection Agency
75 Hawthorne Street (Wtr-1)
San Francisco, CA 95105

Re: Comments on the Advanced Notice of Proposed Rulemaking for Water Quality Issues in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary: Investigation into Toxins and Stressors Impacting Fish in the Bay-Delta

Selenium Waivers, A Grasslands Photo Tour, and responses to The San Luis Delta Mendota Water Authority (SLDMWA) April 6, 2011 Correspondence Regarding EPA's Advanced Notice of Proposed Rulemaking on Bay Delta Water Quality Issues San Francisco Bay-Delta Estuary

Dear Alexis:

On February 25, 2011, Pacific Advocates distributed an informal email to Karen Schwinn, including some photos from a tour of the San Luis Delta Mendota Water Authority (SLDMWA) Grasslands Bypass Project. They sent a letter dated April 6, 2011, to correct what they perceived as misstatements. Their detailed responses to my email helped to clear up a few issues, but most significantly, help to clarify some of the areas where we have disagreements regarding the facts and their significance. Please accept these comments on the Advanced Notice of Proposed Rulemaking for Water Quality Issues in the San Francisco Bay/Sacramento-San Joaquin Delta Estuary.

Pacific Advocates joins a broad coalition of 27 fishing, public health, conservation, environmental justice, and tribal in opposing the use of the San Joaquin River and its tributaries as a de-facto drain for agricultural wastewater from the SLDMWA's Westside districts causing downstream users and the Delta Estuary to bear the burden for this pollution.

Below, we address the most critical points of disagreement. In addition, separately attached is a corrected Grasslands Photo Tour, modified per SLDMWA's Comments.

The following specific comments outline our disagreements:

1. Using the San Joaquin River as a De-Facto Drain sends the problems and costs downstream to utilities, farmers, businesses and communities who rely on a healthy ecosystem.
2. An Interim "2 Year" project to discharge selenium pollution to Mud Slough & the San Joaquin River has grown to almost 25 Years.

15652 ALDER CREEK ROAD · TRUCKEE CA 96161 · (530) 550 0219 · pacificadvocates@hotmail.com

3. Admirable efforts to curb the toxicity of this Westside pollution nevertheless have failed to meet water quality standards—how long will the standards be waived and the pollution spread downstream?
4. Finding and funding a cost effective treatment solution has not materialized in 25 years.
5. Monitoring should not be reduced because the project has not demonstrated success.
6. Time's up—we need an exit strategy to end all the compliance extensions and protect our water quality. The San Joaquin River should not be a de-facto drain.

There is no reasonable, substantive basis for expecting success within the re-set timeframe of success. I urge EPA to work with the SWRCB and the Delta Stewardship Council to establish a clear and legally binding exit strategy from seemingly unending compliance extensions. Extensive data have been collected, but standards are not enforced. A legally binding moment of "Time's up" is what has always been missing from this project. There has been almost a quarter of a century of "promising" to meet compliance dates. A quarter century of moving the compliance date line sure looks like an open-ended license to pollute. It is true the dischargers are trying and perhaps poisoning things less, and yet downstream users and the Delta Estuary continue to bear the burden.

I appreciate the opportunity to clarify these points, and hope this discussion has been fruitful.

Sincerely,



Patricia Schifferle
Director
Pacific Advocates¹

¹ Author of State Assembly Office of Research Publications:
Leaching Fields—A Threat to Groundwater (1985)
Toxic Ponds—Antiquated Methods and Unacceptable Dangers (1984)
Is Our Water Safe to Drink Assembly Office of Research (1983)
Protecting Public Drinking Water—A Program to Combat Toxic Contamination (1983)

Attachments: Sierra Club California, Planning and Conservation League, Pacific Coast Federation of Fishermen's Associations and Friends of the River-- Irrigated Lands Testimony, April 7, 2011.
Modified Grassland Photo Tour
Map Excerpt Westside Salt Assessment Study Area USBR 2010.

Using the San Joaquin River as a De-Facto Drain sends the problems and costs downstream to utilities, farmers, businesses and communities who rely on a healthy ecosystem.

It is no surprise that SLDMWA views the discharge of their agricultural wastewater—with high concentrations of selenium and other contaminants—from their drainage project area to Mud Slough and the San Joaquin River, and ultimately the Delta Estuary and San Francisco Bay, as a good project. They argue that collecting this wastewater and discharging it into the San Luis Drain and then to Mud Slough and San Joaquin River provides benefits to wetland channels and Salt Slough. Indeed it does—by transferring the contamination to Mud Slough and then the River. It also provides significant benefits to them—they are able to send their wastewater downstream, in essence passing the costs on to others and potentially damaging the Estuary's ecological resources.

Although SLDMWA is correct that shifting the pollution from the wetlands and Salt Slough to Mud Slough has resulted in improvements to the wetland water supply channels and Salt Slough², their maps show that this toxic drainage flows next to and through wetland areas, including National and State Wildlife Refuges. This direct discharge of wastewater started in 1987 when the Bureau built a connection from the terminus of the San Luis Drain to Mud Slough in order to discharge to the San Joaquin River.³ See Figures 2-3 in the attached testimony of the Sierra Club, Planning and Conservation League, Pacific Coast Federation of Fishermen's

² "Mud Slough (North) is one of the major west-side tributaries of the San Joaquin River, and also conveys drainage water from the Grasslands Drainage Area to the San Joaquin River. Flows are highly variable throughout the year, ranging from high flow during the wet season and during periods of wetland releases to very low flow during the summer and early fall. Agricultural drainage from the selenium-affected area of the Grasslands Basin, conveyed through San Luis Drain, is discharged into Mud Slough at a point about 6 miles upstream from the slough's confluence with the San Joaquin River. Flow in Mud Slough upstream from this discharge point consists of wetland releases from Grasslands Water District and Volta Wildlife Management Area, operational spills from the Delta-Mendota Canal and the Central California Irrigation District Main Canal, and storm water runoff from Los Banos Creek. Mud Slough downstream from the San Luis Drain discharge point is often dominated by water originating from the Grasslands Drainage Area. Flow from San Luis Drain accounts for 20 to 40 percent of the annual flow in Mud Slough (North)." [pg 30 of PDF]
http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/vernal/salt_boron/usbr_west_wtrbdgt_meth_draft.pdf

³ See State Water Resources Control Board Order # 87-201 and NPDES CA 0082171.

Association and Friends of the River (Attachment 1: Irrigated Lands Testimony). Waterfowl swimming and feeding in wastewater adjacent to wetland areas do not know that the wastewater is toxic.

As you can tell from the photos and note sent to you on February 25, 2011, there are concerns about discharging agricultural drainage contaminated with selenium, boron, and salt into Mud Slough and the San Joaquin River—the side channels, seasonally flooded areas and wetland areas along Mud Slough, the San Joaquin River—and ultimately to the Delta Estuary.⁴ There is fundamental disagreement over the potential impacts of transporting this concentrated drainage through conveyance channels, the Slough, and the River, next to wetland areas, and through State and Federal wildlife refuges. The waterfowl and fish still forage in and use these waters, as seen in the photos.

EPA testified to the Stewardship Council on February 2, 2011, regarding the need to review the role played by selenium contamination and the role that Westside irrigators play in using the San Joaquin River and tributaries as a wasteway and the resultant loading to the Delta Estuary and Suisun Bay.⁵ Water Board staff have also confirmed the primary source of selenium in the Lower San Joaquin River Basin and the Grasslands Watershed is from the drainage project area.⁶ Although portions of the Lower San Joaquin River were removed from the TMDL list for selenium, the portion between the SLDMWA discharge and Crows Landing is still listed as impaired, along with areas within the Grasslands Watershed Basin.

⁴ The dischargers suggest in their response that references for the downstream impacts of these levels of selenium are not available or misinterpreted. The literature by government scientists is clear: “*Selenium concentrations in agricultural drainwater from this area reach levels that, when bioaccumulated through food chains, cause adverse effects on aquatic and aquatic-dependent wildlife. Where such drainwater is applied to uplands, as in reuse areas, strictly terrestrial wildlife may be impacted as well. . . . Downstream from the San Luis Unit, any drainwater from the Project area is diluted by relatively low-selenium water from rivers that drain the Sierra Nevada Mountains. However, as the San Joaquin River reaches the San Francisco Bay/Delta estuary, flow velocities decrease and salinity increases. In these slow-moving, saline waters, with abundant introduced filter-feeding invertebrates, ecosystems have developed that evidently are much more effective than riverine ecosystems at bioconcentrating water-borne selenium. Therefore, potential downstream effects must be considered.*” Pg 2-4.
[http://wwwrcamnl.wr.usgs.gov/Selenium/Library articles/Beckon and Maurer Effects of Se on Listed Species SLD 2008.pdf](http://wwwrcamnl.wr.usgs.gov/Selenium/Library%20articles/Beckon%20and%20Maurer%20Effects%20of%20Se%20on%20Listed%20Species%20SLD%202008.pdf)

⁵ <http://pubs.usgs.gov/fs/2004/3091/>
http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_sc/se_tmdl_rpt.pdf
<http://www.cal-span.org/cgi-bin/archive.php?owner=DSC&date=2011-02-24>
<http://pubs.usgs.gov/pp/p1646/pdf/pp1646.pdf>
http://wwwrcamnl.wr.usgs.gov/tracel/people/robin_stewart.html

⁶ http://www.swrcb.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/san_joaquin_sc/se_tmdl_rpt.pdf

An interim “2 year” project to discharge selenium pollution to Mud Slough & the San Joaquin River has grown to almost 25 years.

Originally this use of the San Luis Drain was an “interim” project to last only 2, possibly 5 years.⁷ Then it was extended for an additional ten years to December 2009, when the discharger—SLDMWA—promised to have a treatment method in place to eliminate the need to discharge into Mud Slough and the San Joaquin River.⁸ The Basin Plan Amendment approved in 1998 required that the SLDMWA would meet federal water quality standards, and federal aquatic standards to protect waterfowl, fish and aquatic ecosystems in Mud Slough (North) and the San Joaquin River (upstream of the Merced River) in all water-year types after October 2010. As you know, on October 5, 2010, another extension of the Grassland Bypass Project was granted for approximately another decade, providing an extension of the exemption from complying with water quality objectives in Mud Slough (North) and the San Joaquin River. Thus, the project and the contaminated discharges could continue for almost a quarter century. It is true the SLDMWA and its members are trying to comply and trying to meet federal water quality standards for Mud Slough and portions of the San Joaquin River. It is equally true, as they state, that they do meet the federal water quality standards in the river downstream from the Merced River, thanks to dilution of the selenium and other contaminants with those flows. It is

⁷ First Use Agreement: # 6-07-20-w1319, November 1995. *“The original Use Agreement, dated November 3, 1995, allowed the Authority to use a portion of the San Luis Drain (the Drain) to convey agricultural drain water through adjacent wildlife management areas to Mud Slough, tributary to the San Joaquin River.... The 1995 Use Agreement and its extension in 1999 allowed for use of the Drain for a 5-year period that concludes September 30, 2001.”* http://www.usbr.gov/mp/grassland/documents/eis_eir_rpt_overview.pdf pg 2.

⁸ NPDES # CA 0082171 Order # 87-201 (USBR connects San Luis Drain to Mud Slough and San Joaquin River. Discharge of Agricultural Wastewater. December 1987.

·NPDES # CA0082368 Order # 90-027 (USBR Discharge of Agricultural Wastewater and Selenium Contaminated water in SLD to Mud Slough and San Joaquin River. March 1996.

·NPDES #CA0083917 (USBR and SLDMWA discharge of Selenium Contaminated Groundwater & Subsurface Drainage to Mud Slough and San Joaquin River) (SLDMWA notifies Board of completion April 23, 1996 also “blending of agricultural subsurface drain water with the accumulated groundwater.” March 1996.

·Basin Plan Amendment #96-147-Prohibits Subsurface Drainage Discharges in the San Joaquin Basin with exceptions. SWRCB # 96-078; September 19, 1996. EPA May 24, 2000.

·Order # 98-171, (USBR & SLDMWA discharge of agricultural wastewater to San Joaquin River via SLD and Mud Slough), July 1998.

·Order # 5-01-234, (USBR & SLDMWA extended compliance waiver to allow discharge of agricultural wastewater to San Joaquin River via SLD and Mud Slough), September 2001.

·Basin Plan Amendment No R5-2010-0046 waives compliance for selenium as specified. 5-27-2010 & SWRCB # 2010-0046, October 5, 2010.

also true, however, that their wastewater discharges cause concentrations to exceed water quality standards in the San Joaquin River from Mud Slough to the Merced River. Good intentions, as this situation demonstrates, do not necessarily result in compliance and protection of the public's water resources.

Admirable efforts to curb the toxicity of this Westside pollution nevertheless have failed to meet water quality standards—how long will the standards be waived and the pollution spread downstream?

It is true that the selenium levels measured in the San Joaquin River at Crows Landing, after dilution from the Merced River, are in compliance with the Clean Water Act standard of 5 ppb. It is equally true, however, that the 5 ppb standard is exceeded in the San Joaquin River between Mud Slough and the Merced River. (See Sierra Club et.al. Figure 5, Irrigated Lands Testimony). For these water bodies SLDMWA has consistently failed to keep promises made to meet protective standards.⁹

In addition, since 1995 and after the first use agreement, there have been promises to dispose of the sediments in the San Luis Drain. SLDMWA provides a useful clarification that these sediments will be disposed of on agricultural lands rather than housing or industrial sites. These sediments, which measured some 58,000 cubic yards at the start of the project and now have grown to more than 200,000 cubic yards, are a reservoir of selenium that needs to be disposed of where it will not pose a threat to wildlife or water or it needs to be sent to a proper disposal site in a responsible manner. Certainly that appears to be the intent of the SLDMWA. For more than a decade, they have declared this intent in the various use agreements. My point is simply that waste discharge requirements would be an important step to ensure the safe disposal of these selenium tainted sediments that all are in favor of ensuring. Further delay risks these sediments and contaminants being discharged to the river.

Finding and funding a cost effective treatment solution has not materialized in 25 years.

⁹ "Based on a review of the available scientific literature, the Regional Board determined that a 2 ppb monthly mean selenium objective would be protection of waterfowl (CRWQCB, Central Valley Region 1996; pg. 61). Consideration was given to translating the selenium water quality objective into a load limit, but water quality data collected in Salt Slough in the late 1980's through early 1990's showed little change in concentration even in response to significant load reductions. (CRWQCB, Central Valley Region; 1995 pp. 5-7) "
http://www.waterboards.ca.gov/rwqcb5/water_issues/tmdl/central_valley_projects/salt_slough_se/salt_slough_se_tmdl.pdf

Finding a long term solution to this complex problem is critically important. As yet a treatment option that is economically and technically viable has not been determined nor has the funding been identified. Everyone is hopeful that federal funding and some cost-effective treatment option can be found in order to stop the discharge of selenium and other contaminants into the San Joaquin River and the Delta Estuary. The disagreement is over the enforcement of water-quality standards. We believe the law should be enforced. Further, the pollution should not be transferred to other downstream users and ecological resources while waiting for some treatment process that has yet to materialize after more than 20 years.

State or federal funds have been a „promise“ of the project now for some time. Some grants and funds have been provided, but no economically successful treatment method has been found. It is great that SLDMWA is working to obtain those funds. As SLDMWA points out, it is equally true that the funding for redirection of the unregulated sumps discharging selenium into the Delta Mendota Canal, the increased monitoring costs, and the federal funding for yet to be determined In-Valley treatment solutions, are pending and not secured. On April 1, 2011, the Declaration of Donald Glaser, Regional Director, Mid-Pacific Region United States Department of the Interior, Bureau of Reclamation indicated that the Bureau is still operating under a series of continuing resolutions or temporary spending measures. Moreover, all of this funding is subject to Congressional appropriation, which is not a reliable assumption in this day and age.

The essential point, which is confirmed by SLDMW, is that funding at the federal and State levels is not guaranteed either for sufficient monitoring or for a treatment technology that is reliable and cost-effective.

Monitoring should not be reduced because the project has not demonstrated success.

The latest draft monitoring plan proposes reductions in the extent of monitoring (Draft for the Technical Data Team the “Draft Monitoring Program for the Grassland Bypass Project January 1, 2010-December 31, 2019.”). Although not yet adopted, you can see from the proposed monitoring program that there are numerous changes and reductions contemplated. For example, at Crows Landing, the compliance point just below the Merced River, there is a change proposed from weekly to a monthly monitoring schedule. The Clean Water Act requires a total “daily” maximum load measurement or assessment of concentrations measured across a 4 day average. Changing to a monthly grab will make reliable load and concentration measurements impossible. The frequency and sites on the San Joaquin River from the discharge to the Merced River are slated to be reduced or eliminated. As USGS has pointed out on numerous occasions regarding the inadequacy of the monitoring to assess the full impacts to biological resources, the river and bioaccumulative impacts in the ecosystem and Delta Estuary.¹⁰

¹⁰ See http://wwwrcamnl.wr.usgs.gov/Selenium/Library_articles/Presser_etal_GBP_monitoring_plan_1996.pdf

Also, it appears that key biological monitoring would not be collected consistently to assess the cumulative impacts from this discharge of selenium into the river and estuary.¹¹ As mentioned by SLDMWA, this monitoring program and waste discharge requirements will be the subject of public review and USBR has cautioned all that the monitoring proposal is in draft form. Monitoring should not be reduced.

The SLDMWA response recognizes that storm water and unregulated flows do enter into the wetland channels. We agree. We disagree, however, over the potential impacts and control of these unregulated discharges. In 2000, the Regional Water Quality Control Board Staff Report confirmed that discharges from unregulated sumps, ground water, and flood events cause the wetland channels within the project to be subject to elevated levels of selenium above the federal aquatic life protective standard.¹² Municipal storm water comingled with irrigated drainage is also discharged from the City of Los Banos.¹³ USFWS also raised objections to unregulated discharges of selenium to the wetland supply channels in November 2002.¹⁴ These

Theresa S. Presser Memorandum to Michael Delamore and Joseph McGahan. Subject Comments on Draft EIS/EIR for the nine year renewal of the Grassland Bypass Project. February 26, 2001.

¹¹ Toxicity response curves for sensitive species of fish and birds are extremely steep. This means there is almost no room for error once toxicity thresholds are crossed; once the threshold is crossed increasing food chain Se concentrations by just one or two parts per million can mean the difference between a relatively low level effect (10% embryo toxicity) and a catastrophic effect (90% embryo toxicity). As demonstrated by researchers from UC Davis working in the Sierra Nevada on a selenium fertilization project, aquatic food chains are sometimes more sensitive to the short-term peak pulse of Se that moves through a system than to longer-term "average" exposure. This work was published in: Maier, K.J., C.R. Nelson, F.C. Bailey, S.J. Klaine, and A.W. Knight. 1998. "Accumulation of selenium by the aquatic biota of a watershed treated with seleniferous fertilizer." Bulletin of Environmental Contamination and Toxicology, 60:409-416. This environmental behavior of selenium was noted in the first comprehensive review of the environmental toxicology of selenium by Professor Charles Wilber 30 years ago and led him to write... "Toxicologists especially should be sensitive to the biology of extremes as being more realistic than is the biology of means." Wilber, C.G. 1980. "Toxicology of selenium: a review." Clinical Toxicology, 17:171-230.

Also See <http://menlocampus.wr.usgs.gov/50years/accomplishments/agriculture.html>

¹² http://www.swrcb.ca.gov/rwqcb5/water_issues/water_quality_studies/2ppbrpt.pdf
Also See: http://www.swrcb.ca.gov/rwqcb5/water_issues/water_quality_studies/sjr9900.pdf

¹³ See: CCID Agreement with the City of Los Banos 11-11-87 and new agreement May 4, 2005, allowing municipal storm water discharges comingled with agricultural drainage to be discharged into wetland channels and Mud Slough for 25 years.

¹⁴ Ibid. USFWS at 7 and See http://www.swrcb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_att_c.pdf
.....Part of Monitoring and Reporting Program No. SJR027 has demonstrated that, at least on an annual basis, discharges from one of the Firebaugh sumps has exceeded hazardous waste levels for selenium. Further, discharge of agricultural subsurface drainage water to the DMC (source waters of the Grassland wetland supply channels) continues even though exceedances of water quality objectives in the Grassland wetland supply channels are occurring. We concur with the CVRWQCB's previous finding (Pierson et al, 1987) that these discharges are a management problem capable of control.....
The issue of selenium contamination in the DMC was discussed in the Grasslands Bypass Project

impacts are further confirmed in the USFWS scoping comments for the extension of discharge for almost another decade.¹⁵ Without adequate monitoring, the sources and biological impacts of the project will remain unknown.

The discussion of monitoring biological conditions and photographic data on impacts on wildlife and waterfowl is important to the scientific record. These are important public records to retain and must be made available to the scientific community to further our understanding of the project.¹⁶

Reference to “Kesterson Effects” is a term used in the scientific community to describe the particular biological impact of selenium.¹⁷ Attached are the references for the photos of the Kesterson- like deformities found near Five Points California taken by the USFWS. The monitoring data on selenium in eggs and embryos in the Grasslands drainage reuse area document concentrations greater than those that caused deformities at Kesterson. The

Biological Opinion (Service File No., 1 - 1-0 1 -F-0 153), a copy of which was sent to both the CVRWQCB and SWRCB. The Service also provided both Boards with a copy of a memo from the Service to Reclamation on the Water Quality Monitoring Program for the Delta Mendota Canal dated July 11, 2002, (Service File No., 1-1-02-1-1880). In this memo, the Service recommended that Reclamation include more intensive sampling of DMC waters just upstream and downstream of the Firebaugh sumps, and systematic, direct sampling of discharges from the Firebaugh sumps. The Service stated that relative to selenium contamination in the DMC, "Past data are adequate to justify implementing preventative measure(s) now."
http://www.swrcb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_att_c.pdf

¹⁵http://www.wrcamnl.wr.usgs.gov/Selenium/Library_articles/san_luis_articles/USFWS_CEQA_Scoping_Comments_CVRWQCB_GBP_Extension_3-19-09.pdf

¹⁶ See: Theresa S. Presser to Michael Delamore, USBR and Joe McGahan, *Comments on Draft EIS/EIR for the nine-year renewal of the Grassland Bypass Project*. February 26, 2001. “Concern remains for control of loads during wet years and the overall effectiveness of planned actions because of the basin-wide nature of ground water degradation in the western San Joaquin Valley. ...Mitigation calls for a Sediment Management Plan.Among these is the fact that samples of bed sediment from the SLD contain elevated concentrations of SE that approach hazardous waste levels (100pp, wet weight)...As noted above, concern remains that long-term drainage management planning...will continue to be limited without development of information relating to groundwater conditions and to concentrations of SE in the regional system that influence SE discharges. A systematic long-term monitoring program is crucial to understanding the fate and impact of the management changes in regards to protection of ecosystems receiving SE discharges. Little is known about SE concentrations in the Delta, yet this is the system that could be most impacted by SE discharges from the San Joaquin Valley.” Pgs 4-8
Luoma and Presser, 2000. “Monitoring of vulnerable foodwebs specific to water bodies, such as the San Joaquin River ecosystem, affect by the GBP would enable site-specific measures of SE bioaccumulation.”
United States Fish and Wildlife Service Comments to Central Valley RWQCB Mary 8, 2010
http://www.swrcb.ca.gov/rwqcb5/water_issues/grassland_bypass/usfws_com.pdf

¹⁷ <http://menlocampus.wr.usgs.gov/50years/accomplishments/agriculture.html>

concentrations found in these samples are consistent with the types of effects shown in the photos and monitoring near Five Points, California.¹⁸

Time's up—we need an exit strategy to end all the compliance extensions and protect our water quality. The San Joaquin River should not be a de-facto drain.

There is no reasonable, substantive basis for expecting success within the re-set timeframe of success. I urge the SWRCB to work with EPA and the Delta Stewardship Council to establish a clear and legally binding exit strategy from seemingly unending compliance extensions. Extensive data have been collected, but standards are not enforced. A legally binding moment of "time's up" is what has always been missing from this project. There has been almost a quarter of a century of "promising" to meet compliance dates. A quarter century of moving the compliance date line sure looks like an open-ended license to pollute. It is true the dischargers are trying and perhaps poisoning things less, and yet downstream users and the Delta Estuary continue to bear the burden.

¹⁸ "San Joaquin River Water Quality Improvement Project, Phase 1 Wildlife Monitoring Report, 2008." H.T. Harvey and Associates. July 2009. Page 22. http://www.sfei.org/sites/default/files/sjrip_2008.pdf The geometric mean, egg selenium concentration in recurvirostrid eggs collected at the SJRIP Phase I area in 2008 (50.9 µg/g) exceeded all geometric mean selenium concentrations in recurvirostrid eggs collected at Kesterson Reservoir from 1983 to 1985.

See: <http://www.c-win.org/content/c-win-letter-delta-stewardship-council-toxic-lands.html>